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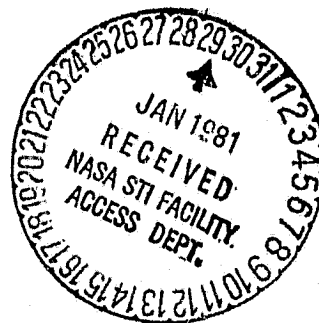
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INSTRUMENTS AND ATTACHMENTS FOR ELECTRONYSTAGMOGRAPHY

Candidate of Medical Sciences Yu. T. Mironenko and
A. A. Vilenskiy

Translation of "Pribery i prisposobleniya dlya
elektronistagmografii," Zhurnal ushnykh, nosovykh
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16. Abstract This article describes a portable set of instruments, centered on a one-channel electrocardiograph, for recording nystagmus with eyes open and closed, and rotational, caloric, position and pressure nystagmus.			
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INSTRUMENTS AND ATTACHMENTS FOR ELECTRONYSTAGMOGRAPHY

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In clinical practice in order to judge the condition of the vestibular analyzer, spontaneous vestibular disorders are detected, and a number of experimental tests are also made: rotational, caloric, etc. Supplemented by electronystagmographic recording, the results of these studies make it possible to quantitatively assess it, and at the same time permit a reliable judgment on the functioning of the vestibular apparatus. /79**

Domestic industry is not yet manufacturing electronystagmographs. Therefore, for vestibulometry we have to use expensive electroencephalographs or electrocardiographs that have considerable dimensions (I. A. Sklyut, 1973), which impairs their use in the clinic, polyclinic, and directly at the patient's bed.

We have developed a portable set of instruments and devices that make it possible to record spontaneous nystagmus with open and closed eyes, as well as rotational, caloric, position and pressure nystagmus under any conditions. /80

The chief component in the set is the one-channel electrocardiograph "Salyut-1," that has two power units, a storage battery

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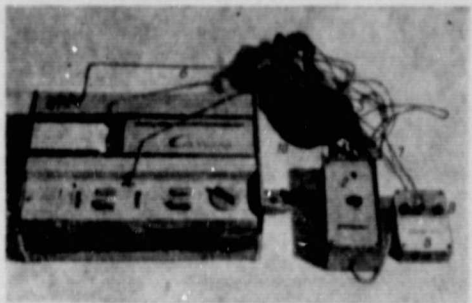


Figure 1. Set of Instruments for Electronystagmography.

1. electrocardiograph "Salyut"
2. preamplifier
3. half-mask
4. calibrator
5. protractor
6. rods
7. conductors
8. remote-control panel
9. knob switch
10. shade

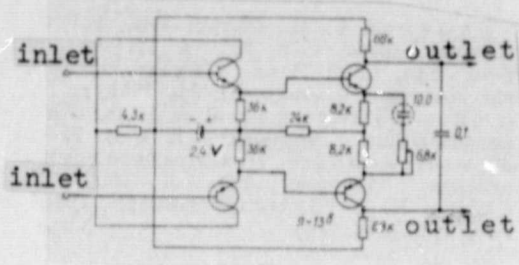


Figure 2. Scheme of Preamplifier



Figure 3. Instruments and Attachments for Rotational Test

1. Barani chair
2. detachable table
3. electrocardiograph with storage battery unit



Figure 4. Attachments for Caloric Test

1. receptacles for water
2. pipes

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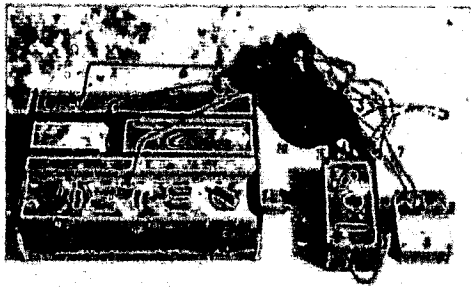


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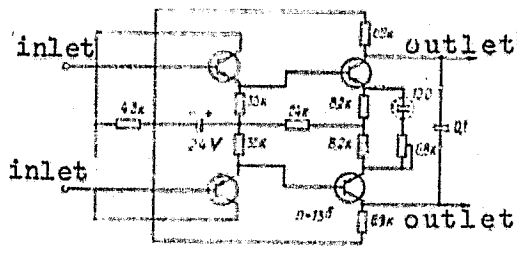


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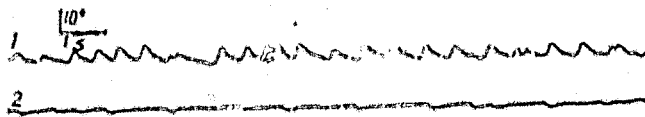


Figure 5. Fragments of Electronystagmograms

1. nystagmus to the right
2. nystagmus to the left

and circuit (fig. 1). Amplification of the corneoretinal potential that comes to the electrocardiograph is implemented by the alternating current preamplifier 2 that we made with time constant of 2 s (fig. 2).

For convenience of applying the electrodes and conducting the calibration half-mask 3 is used with electrodes and calibrator 4 installed in it (see fig. 1). The rim of the half-mask is made of light-impermeable material. The calibrator consists of protractor 5 that is secured horizontally in the center of the upper edge of the rim and is equipped with three radial rods 6 with miniature light sources. The lamps are powered by conductors 7 that come from the remote control panel 8 that is equipped with battery knob switches 9. The recording of spontaneous nystagmus with open and closed eyes in the dark is guaranteed by the covering of the visual field with shade 10 that is fixed on the half-mask.

In order to conduct the rotational test Barani chair 1 is used with detachable table 2, on which the electrocardiograph (with storage battery unit) 3, preamplifier 4 are placed (fig. 3).

During the caloric test, a head rest is used that is made of organic glass, with angle of incline 30° in relation to the horizontal surface, two receptacles for water 1, made of polyethylene, and a pipe from the system for blood transfusion 2 (fig. 4).

As an example (fig. 5) we present the electronystagmograms of caloric nystagmus to the right 1 and to the left 2 that were

made in a patient who had radical surgery on the right ear a year ago.

References

Sklyut, I. A. Vest. otorinolar., No. 6 (1973), p. 75-80.